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| Th | r Va | 1 G) | u Le | u Gl | u Pro | Val | . Val | | Thr | - Tle | ο Δατ | Tue | | ~ ~1. | y Met |
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| | | | | 85 | | | | | 90 | | | | | 95 | / Thr |
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| | | | 340 | | | | | 345 | | | | | 350 | | |
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| Solution | Solution

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| Pro | Leu | Thr | Arg | Asn | Leu | Ser | Ala | Val | Val | Arg | Tyr | Asn | Tyr | Gly | Phe |
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| Glu | Ala | Lys | Lys | Pro | Ile | Glu | Val | Leu | Ala | Gly | Ala | Glu | Tyr | Lys | Ser |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Ser | Cys | Gly | Cys | Trp | Gly | Ala | Gly | Val | Tyr | Ala | Gln | Arg | Tyr | Val | Thr |
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| Gly | Glu | Asn | Thr | Tyr | Lys | Asn | Ala | Val | Phe | Phe | Ser | Leu | Gln | Leu | Lys |
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| Asp | Leu | Ser | Ser | Val | Gly | Arg | Asn | Pro | Ala | Asp | Arg | Met | Asp | Val | Ala |
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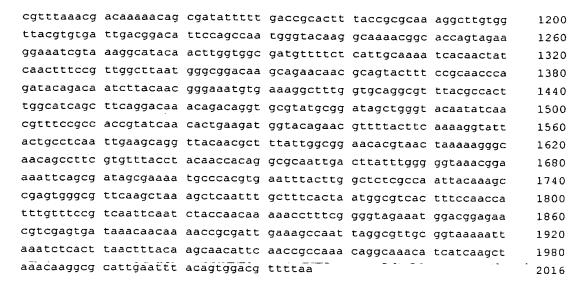
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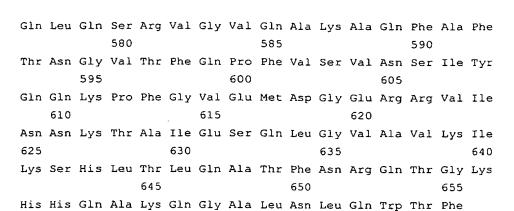


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| Lou | 502 | | y e.p. | Wal | N c n | 7.00 | Ser | uio | tr. 1 | -1 - | G3 | 205 | m. | - 1 | |
| Leu | 210 | neu | Asp | vai | АЗР | 215 | ser | uis | vaı | ire | | Gin | Thr | TTE | qzA |
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| Thr | гÀг | ser | | ser | Leu | Leu | Val | | Glu | Asp | Tyr | Ala | | Gly | Ala |
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| iie | | Int | Pne | Ģīu | rys | | Ile | Thr | GIY | Thr | | Asp | IIe | He | Phe |
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| 305 | T | 17-1 | N | G1 | 310 | n 1 - | 3 | | | 315 | _, | | _ | _ | 320 |
| rre | гуз | vai | ASI | | Inr | Ala | Asp | rys | | Ala | Phe | Arg | Leu | | GTÀ |
| 7 | uia | C1- | T | 325 | T1- | | m 1 | T | 330 | - | 61 | | | 335 | _, |
| гуѕ | UIS | GIII | 140 | GIY | 116 | ryr | Thr | | ser | Leu | GIN | GIn | _ | Pro | GIU |
| C1 | Dha | D4 - | | 7 | **- 1 | C1 - | 63 | 345 | _ | _ | _, | | 350 | _ | |
| GIY | rne | 355 | 1111 | гуѕ | Vai | GIII | Glu | Arg | Asp | Asp | iie | | lle | Tyr | Ala |
| C1= | Cl- | | C1= | N I n | 71.0 | 7 | 360 | • | D1 | | _ | 365 | _ | _ | _ |
| GIII | 370 | ATA | GIII | мта | MIA | | Thr | Leu | Pne | Ala | | Arg | Leu | Asn | Asp |
| T | | C = == | 2 | T1. | Db - | 375 | N | m\ | • | _ | 380 | _ | | _ | _ |
| | ASII | ser | ASP | iie | | Asp | Arg | Thr | Leu | | Arg | Lys | GIY | Leu | _ |
| 385 | 7 ~~ | 17-1 | Tla | 7 | 390 | 11:0 | C | C | G1 - | 395 | ** . * | ~ 1 | a 1 | _ | 400 |
| тец | ALG | vai | 116 | 405 | GIY | uis | Ser | ser | | Trp | vaı | GIN | GIA | | Tnr |
| בות | Bro | 1753 | C1 | | 7.00 | λ ~ | T | C1 | 410 | C1- | | G1 | 61 | 415 | **- 3 |
| Ald | 110 | Vai | 420 | GIY | M311 | ALG | Lys | 425 | 116 | GIII | Leu | GIÀ | _ | Asp | vai |
| Pho | Sar | Len | | λεν | ui c | λακ | Tyr | | T | C | 31-3 | C1 | 430 | | 63 |
| rne | Ser | 435 | GIII | ASII | nıs | MSII | 440 | GIN | Leu | ser | vai | | ren | Met | GIĀ |
| Glv | Gln | | Glu | Gln | Ara | Sar | Thr | Dhe | N = ~ | ħ o n | Bro | 445 | mb = | 7 an | 7.00 |
| Gry | 450 | n.u | GIU | G111 | ALG | 455 | FIIL | rne | | ASII | 460 | asp | 1111 | ASP | ASII |
| T.e.11 | | Thr | Glv | Δsn | 1/a 1 | | Gly | Pho | Gly | Λl 2 | | W-1 | T | Λ 1 ¬ | Th = |
| 465 | | | CLJ | | 470 | 2,5 | OLY | LIIC | Cry | 475 | Gry | Val | ıyı | AIG | 480 |
| | His | Gln | I.e.ii | Gln | | f.vs | Gln | Thr | Glv | _ | T117 | ת ו ת | Aen | 802 | |
| | | · · · · | Dea | 485 | эр | - | 0111 | **** | 490 | n1a | 1 y L | VIG | vab | 495 | rrp |
| Val | Gln | Tvr | Gln | | Phe | Ara | His | Ara | | Asn | ጥh r | Glu | Asn | | Thr |
| | | -,- | 500 | | | | | 505 | | | **** | Olu | 510 | Cry | |
| Glu | Ara | Phe | | Ser | Lvs | Glv | Ile | | Ala | Ser | Tle | Glu | | Glv | Tur |
| | 9 | 515 | • | | -,- | , | 520 | | ***** | Jer | 110 | 525 | NI. | GLY | |
| Asn | Ala | | Leu | Ala | Glu | His | Val | Thr | Lvs | I.vs | GLV | | Ser | Len | Ara |
| | 530 | | | | | 535 | | | -,5 | ~y 3 | 540 | | JCI | 200 | 9 |
| Val | | Leu | Gln | Pro | Gln | | Gln | Leu | Thr | Tv∽ | | Glv | Val | Asn | Glv |
| 545 | | | | | 550 | | | | | 555 | | 1 | | | 560 |
| | Phe | Ser | Asp | Ser | | Asn | Ala | His | Val | | Leu | Leu | Glv | Ser | |
| • | | - " | - 4- | 565 | | | | | 570 | | | | 1 | 575 | 9 |
| | | | | - | | | | | | | | | | 2.3 | |



665

<210> 7 <211> 2076 <212> DNA <213> Neisseria meningitidis

660

<400> 7

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| ttatcgctgt | tttgcacgcc | atatgtttgt | ggttcggatg | cgtacgatcc | cgtcaaagaa | 120 |
| gccgagatta | aaaacaaatt | tattttagaa | gcggcggaag | acagaaattc | ccacgtttgg | 180 |
| cgcggcccgt | gcagcatatc | ttttgattgc | ttcggtatgt | tcagagctca | gcttggttca | 240 |
| aatactcgtt | ctaccaaaat | cggcgacgat | gccgatttt | cattttcaga | caagccgaaa | 300 |
| cccggcactt | cccattattt | ttccagcggt | aaaaccgatc | aaaattcatc | cgaatatggg | 360 |
| tatgacgaaa | tcaatatcca | aggtaaaaac | tacaatagcg | gcatactcgc | cgtcgataat | 420 |
| atgcccgttg | ttaagaaata | tattacagat | acttacgggg | ataatttaaa | ggatgcggtt | 480 |
| aagaagcaat | tacaggattt | atacaaaaca | agacccgaag | cttgggaaga | aaataaaaaa | 540 |
| cggactgagg | aggcgtatat | agaacagctt | ggaccaaaat | ttagtatact | caaacagaaa | 600 |
| aaccccgatt | taattaataa | attggtagaa | gattccgtac | tcactcctca | tagtaataca | 660 |
| tcacagacta | gtctcaacaa | catcttcaat | aaaaaattac | acgtcaaaat | cgaaaacaaa | 720 |
| tcccacgtcg | ccggacaggt | gttggaactg | accaagatga | cgctgaaaga | ttccctttgg | 780 |
| gaaccgcgcc | gccattccga | catccatacg | ctggaaactt | ccgataatgc | ccgcatccgc | 840 |
| ctgaacacga | aagatgaaaa | actgaccgtc | cataaagcgt | atcagggcgg | cgcggatttc | 900 |
| ctgttcggct | acgacgtgcg | ggagtcggac | gaacccgccc | tgacctttga | acaaaacgtc | 960 |
| agcggaaaat | ccggcgtggt | tttggaacgc | cggccggaaa | atctgaaaac | gctcgacggg | 1020 |
| cgcaaactga | ttgcggcgga | aaaggcagac | cctaattcgt | ttgcgtttaa | acaaaattac | 1080 |
| cggcagggac | tgtacgaatt | attgctcaag | caatgcgaag | gcggattttg | cttgggtgtg | 1140 |
| cagcgtttgg | ctatccctga | ggcggaagcg | gttttatatg | cccaacaggc | ttatgcggca | 1200 |
| aatactttgt | ttgggctgcg | tgccgccgac | aggggcgacg | acgtgtatgc | cgccgatccg | 1260 |
| tcccgtcaaa | aattgtggct | gcgcttcatc | ggcggccggt | cgcatcaaaa | tatacggggc | 1320 |
| ggcgcggctg | cggacgggcg | gcgcaaaggc | gtgcaaatcg | gcggtgaggt | gtttgtacgg | 1380 |
| caaaatgaag | gcagtcggct | ggcaatcggc | gtgatgggcg | gcagggctgg | ccagcacgca | 1440 |
| tcagtcaacg | gcaaaggcgg | tgcggcaggc | agttatttgc | atggttatgg | cgggggtgtt | 1500 |
| tatgctgcgt | ggcatcagtt | gcgcgataaa | caaacgggtg | cgtatttgga | cggctggttg | 1560 |
| caataccaac | gtttcaaaca | ccgcatcaat | gatgaaaacc | gtgcggaacg | ctacaaaacc | 1620 |
| aaaggttgga | cggcttctgt | cgaaggcggc | tacaacgcgc | ttgtggcgga | aggcgttgtc | 1680 |

| ggaaaaggca | ataatgtgcg | gttttacctg | caaccgcagg | cgcagtttac | ctacttgggc | 1740 |
|------------|------------|------------|------------|------------|------------|------|
| gtaaacggcg | gctttaccga | cagcgagggg | acggcggtcg | gactgctcgg | cagcggtcag | 1800 |
| tggcaaagcc | gcgccggcat | tcgggcaaaa | acccgttttg | ctttgcgtaa | cggtgtcaat | 1860 |
| cttcagcctt | ttgccgcttt | taatgttttg | cacaggtcaa | aatctttcgg | cgtggaaatg | 1920 |
| gacggcgaaa | aacagacgct | ggcaggcagg | acggcgctcg | aagggcggtt | cggcattgaa | 1980 |
| gccggttgga | aaggccatat | gtccgcacgc | atcggatacg | gcaaaaggac | ggacggcgac | 2040 |
| aaagaagccg | cattgtcgct | caaatggctg | ttttga | | | 2076 |

<210> 8 <211> 691 <212> PRT <213> Neisseria meningitidis

Met Thr Leu Lys Ala Ser Lys Gln Ala Ser Gly Arg Val Asn Leu Leu Thr Leu Ser Val Leu Ser Leu Phe Cys Thr Pro Tyr Val Cys Gly Ser 25 Asp Ala Tyr Asp Pro Val Lys Glu Ala Glu Ile Lys Asn Lys Phe Ile Leu Glu Ala Ala Glu Asp Arg Asn Ser His Val Trp Arg Gly Pro Cys 55 Ser Ile Ser Phe Asp Cys Phe Gly Met Phe Arg Ala Gln Leu Gly Ser 75 Asn Thr Arg Ser Thr Lys Ile Gly Asp Asp Ala Asp Phe Ser Phe Ser 90 Asp Lys Pro Lys Pro Gly Thr Ser His Tyr Phe Ser Ser Gly Lys Thr 105 Asp Gln Asn Ser Ser Glu Tyr Gly Tyr Asp Glu Ile Asn Ile Gln Gly 120 Lys Asn Tyr Asn Ser Gly Ile Leu Ala Val Asp Asn Met Pro Val Val 135 Lys Lys Tyr Ile Thr Asp Thr Tyr Gly Asp Asn Leu Lys Asp Ala Val 150 155 Lys Lys Gln Leu Gln Asp Leu Tyr Lys Thr Arg Pro Glu Ala Trp Glu 170 Glu Asn Lys Lys Arg Thr Glu Glu Ala Tyr Ile Glu Gln Leu Gly Pro Lys Phe Ser Ile Leu Lys Gln Lys Asn Pro Asp Leu Ile Asn Lys Leu 200 Val Glu Asp Ser Val Leu Thr Pro His Ser Asn Thr Ser Gln Thr Ser 215 Leu Asn Asn Ile Phe Asn Lys Lys Leu His Val Lys Ile Glu Asn Lys 230 235 Ser His Val Ala Gly Gln Val Leu Glu Leu Thr Lys Met Thr Leu Lys 250 Asp Ser Leu Trp Glu Pro Arg Arg His Ser Asp Ile His Thr Leu Glu

WO 00/43519 PCT/EP00/00428

| | | | 260 | | | | | 265 | | | | | 270 | | |
|------|------|-----|------------|------------|------|------------|-------------|-------|-------|-------|------|----------|------------------|-----|-------------|
| Thr | Ser | Asp | | Ala | Arq | Ile | Arg | | Asn | Thr | Lvs | Asp | | Lvs | Leu |
| | | 275 | | | | | 280 | | | | - | 285 | | 4 | |
| Thr | Val | His | Lys | Ala | Tyr | Gln | Gly | Gly | Ala | Asp | Phe | Leu | Phe | Gly | Tyr |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Asp | Val | Arg | Glu | Ser | Asp | Glu | Pro | Ala | Leu | Thr | Phe | Glu | Gln | Asn | Val |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ser | Gly | Lys | Ser | Gly | Val | Val | Leu | Glu | | Arg | Pro | Glu | Asn | | Lys |
| Th- | T 0 | 7 | C1 | 325 | T | T | T1 - | n 1 - | 330 | ۵, | | | _ | 335 | _ |
| Int | Leu | Asp | 340 | Arg | rys | ren | TTE | 345 | Ala | Glu | Lys | Ala | | Pro | Asn |
| Ser | Phe | Ala | | Lys | Gln | Δsn | Tur | | Gln | Glv | Lou | Т | 350 | Lon | T 011 |
| JCI | 1110 | 355 | | цуз | 0111 | AJII | 360 | Ary | GIII | GIŞ | ьец | 365 | GIU | reu | Leu |
| Leu | Lys | | Cys | Glu | Gly | Gly | | Cvs | Leu | Glv | Val | | Ara | Leu | Ala |
| | 370 | | | | | 375 | | | | | 380 | | 5 | | |
| Ile | Pro | Glu | Ala | Glu | Ala | Val | Leu | Tyr | Ala | Gln | Gln | Ala | Tyr | Ala | Ala |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Asn | Thr | Leu | Phe | Gly | Leu | Arg | Ala | Ala | Asp | Arg | СĵА | Asp | Asp | Val | Tyr |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ala | Ala | Asp | | Ser | Arg | Gln | Lys | | Trp | Leu | Arg | Phe | | Gly | Gly |
| 7 ~~ | 802 | uic | 420 Clp | 7.55 | Tlo | 7 = ~ | C1 | 425 | 71- | n 1 - | 2.1- | 3 | 430 | | • |
| ALG | 261 | 435 | GIII | Asn | 116 | ALG | 440 | GIY | Ата | Ala | Ala | 445 | GIY | Arg | Arg |
| Lvs | Glv | | Gln | Ile | Glv | Glv | | Val | Phe | Val | Ara | | Asn | Glu | Glv |
| - | 450 | | | | | 455 | | | | | 460 | 02 | | 014 | - 2, |
| Ser | Arg | Leu | Ala | Ile | Gly | Val | Met | Gly | Gly | Arg | Ala | Gly | Gln | His | Ala |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ser | Val | Asn | Gly | Lys | Gly | Gly | Ala | Ala | Gly | Ser | Tyr | Leu | His | Gly | Tyr |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Gly | Gly | Gly | | Tyr | Ala | Ala | Trp | | Gln | Leu | Arg | Asp | | Gln | Thr |
| C1 | 71- | П | 500 | 2 | G1 | m | • | 505 | - | | _ | | 510 | | |
| GIY | Ald | 515 | Leu | Asp | GIÀ | ттр | 520 | Gin | Tyr | GIn | Arg | 525 | Lys | His | Arg |
| Ile | Asn | | Glu | Asn | Ara | Ala | | Ara | Tur | Lvs | Thr | | Glv | Tro | Thr |
| | 530 | | | | 5 | 535 | | 9 | - , - | 2,0 | 540 | 2,5 | O ₁ y | | **** |
| Ala | Ser | Val | Glu | Gly | Gly | Tyr | Asn | Ala | Leu | Val | Ala | Glu | Gly | Val | Val |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Gly | Lys | Gly | Asn | Asn | Val | Arg | Phe | Tyr | Leu | Gln | Pro | Gln | Ala | Gln | Phe |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Thr | Tyr | Leu | | Val | Asn | Gly | Gly | | Thr | Asp | Ser | Glu | | Thr | Ala |
| U. l | C1 | | 580 | 6 1 | 0 | a) | ~ 1 | 585 | ٠., | _ | _ | | 590 | | _ |
| val | отÀ | 595 | Leu | Gly | ser | стА | 600 | ırp | GIU | ser | Arg | | GTA | 116 | Arg |
| Ala | Lvs | | Ara | Phe | Ala | Len | | Asn | Glv | ۷a۱ | Aen | 605 | Gln | Pro | Pha |
| | 610 | | · | | | 615 | 9 | | y | - 41 | 620 | - C | J.11 | 0 | £ 112 |
| Ala | Ala | Phe | Asn | Val | Leu | | Arg | Ser | Lys | Ser | | Gly | Val | Glu | Met |
| 625 | | | | | 630 | | | | | 635 | | _ | | | 640 |
| | | | | | | | | | | | | | | | |

690

WO 00/43519 PCT/EP00/00428

Asp Gly Glu Lys Gln Thr Leu Ala Gly Arg Thr Ala Leu Gly Arg

Phe Gly Ile Glu Ala Gly Trp Lys Gly His Met Ser Ala Arg

675 - 675 - 68